

WHAT IS CLAIMED IS:

1           1. A protected display case providing security  
for exhibiting items and for storing items when items  
are not on display comprising;

          a) a top section having at least one  
5       viewing window and defining a top volume;

          b) a bottom section having a  
peripheral wall and defining a bottom  
volume;

          c) an access opening between the top  
10       and bottom volumes;

          d) a shelf disposed within the  
display case and adapted to receive items  
for viewing, the shelf having a raised  
position in which the items on the shelf are  
15       in the top volume and available for viewing  
through the viewing window and a lowered  
position in which the shelf and items are  
disposed within the bottom volume;

          e) a lifting mechanism disposed  
20       within the bottom section and comprising a  
motor, a gear assembly, and at least two  
guides, the two guides being spaced apart

and aligned vertically adjacent to the peripheral wall of the bottom section, the motor, gear assembly, and guides working in cooperation to raise and lower the shelf while maintaining the shelf substantially horizontal;

f) a movable panel assembly having a retracted position in which the access opening is unobstructed and a deployed position in which the movable panel assembly substantially covers the access opening; and

g) at least one door situated on the protected display case such that the items on the shelf can be accessed.

2. The protected display case of Claim 1 wherein the viewing window is comprised of breakage resistant material and the peripheral wall of the bottom section is penetration resistant.

3. The protected display case as in Claim 1 wherein the movable panel assembly includes a plurality of individually hinged panels and at least one roller, the hinged panels being stored on said roller when the panel assembly is in a retracted position.

1           4.    The protected display case of Claim 3  
              wherein the guides have a longitudinal axis, the  
              guides being rotatable about the longitudinal axis to  
              raise and lower the shelf.

1           5.    The protected display case of Claim 3  
              wherein each of the guides comprise an elongated  
              track and the gear assembly being arranged to engage  
              the track and move the shelf along the track to  
5           thereby raise and lower the shelf.

1           6.    The protected display case as in Claim 4  
              wherein the protected display case has opposing sides,  
              a front, a back, a top, and a bottom and the movable  
              panel assembly moves in a direction from one side  
5           toward the opposing side.

1           7.    The protected display case as in Claim 5  
              wherein the protected display case has opposing sides,  
              a front, a back, a top, and a bottom and the movable  
              panel assembly moves in a direction from one side  
5           toward the opposing side.

1           8.    The protected display case as in Claim 4  
              wherein the protected display case has two sides, a  
              front, a back, a top, and a bottom and the movable  
              panel assembly moves in a direction from the back  
5           toward the front.

1        9.    The protected display case as in Claim 5  
         wherein the protected display case has two sides, a  
         front, a back, a top, and a bottom and the movable  
         panel assembly moves in a direction from the back  
5    toward the front.

1        10.   The protected display case as in Claim 4  
         wherein the protected display case has two sides, a  
         front, a back, a top, and a bottom and the movable  
         panel assembly moves in a direction from one side  
5    toward the other side.

1        11.   The protected display case as in Claim 5  
         wherein the protected display case has two sides, a  
         front, a back, a top, and a bottom and the movable  
         panel assembly moves in a direction from one side  
5    toward the other side.

1        12.   The protected display case as in Claim 4  
         wherein the protected display case has two sides, a  
         front, a back, a top, and a bottom and the movable  
         panel assembly moves in a direction from the back  
5    toward the front.

1        13.   The protected display case as in Claim 5  
         wherein the protected display case has two sides, a  
         front, a back, a top, and a bottom and the movable

panel assembly moves in a direction from the back  
5 toward the front.

1 14. The protected display case as in Claim 4  
further comprising switches for limiting the movement  
of the movable panel assembly and the lifting  
mechanism, and a motor for transitioning the movable  
5 panel assembly into a closed position, and a roller  
assembly having a biased spring for transitioning the  
movable panel assembly into an opened position.

1 15. The protected display case as in Claim 5  
further comprising switches for limiting the movement  
of the movable panel assembly and the lifting  
mechanism, and a panel motor for transitioning the  
5 movable panel assembly into a closed position, and a  
roller assembly having a biased spring for  
transitioning the movable panel assembly into an  
opened position.

1 16. The protected display case as in Claim 14  
further including a power outlet and computer  
controlled switch between the power outlet and the  
motor and wherein the protected display case has a  
5 computer access port for connecting the protected  
display case to a computer such that the computer may

monitor and operate the lifting mechanism and movable panel assembly.

1        17. The protected display case as in Claim 15  
further including a power outlet and computer  
controlled switch between the power outlet and the  
motor and wherein the protected display case has a  
5 computer access port for connecting the protected  
display case to a computer such that the computer may  
monitor and operate the lifting mechanism and movable  
panel assembly.

1        18. The protected display case as in Claim 5  
including a power outlet and computer controlled  
switch between the power outlet and the motor and  
wherein the protected display case has a computer  
5 access port for connecting the protected display case  
to a computer such that the computer may monitor and  
operate the protected display case.

1        19. The protected display case as in Claim 4  
wherein the protected display case has a manual  
control panel adapted to control the operation of the  
protected display case.

1        20. The protected display case as in Claim 5



1        26. The protected display case as in Claim 5  
wherein the movable panel assembly is adapted to  
respond to obstruction in the access opening and the  
movable panel assembly stops closing when an  
5 obstruction is detected.

1        27. The protected display case as in Claim 4  
wherein the movable panel assembly comprises a  
plurality of hinged panels.

1        28. The protected display case as in Claim 5  
further comprising a plurality of movable panel  
assemblies.

1        29. The protected display case as in Claim 1  
wherein the lifting mechanism includes a stabilizing  
assembly comprised of a pair of hat shaped rails  
secured to the opposite sides of the bottom section  
5 and a carriage having a movable shelf support and at  
least two wheels which engage the hat shaped rail and  
the wheels working in conjunction with the hat shaped  
rails to restrict lateral movement by the carriage as  
the carriage moves along the guides.

1        30. The protected display case as in Claim 29  
wherein the guide is in the form of a hat shaped rail  
having two edges and the gear assembly has at least  
two wheels for each guide and the wheels being adapted



5 to engage the sides of the hat shaped rail thereby  
limiting the deviation of the shelf.

1 31. The protected display case as in Claim 3  
wherein the lifting mechanism further comprises:

a) a gear box having a first and  
second output and the motor and the gear box  
5 being disposed on the bottom of the shelf  
and the motor being connected to the gear  
box, the gear box being part of the gear  
assembly;

b) a U-joint connected to each output  
10 of said gear box;

c) a rod connected to each U-joint;

d) a coupling connected to each rod  
opposing the U-joint;

e) a second rod connected to each  
15 coupling;

f) a worm gear connected to the  
second rod;

h) a gear adapted to receive the worm  
gear;

20 i) a gear housing containing the gear  
and worm gear and the gear housing  
being secured to the shelf;

j) track teeth being part of the track that work in conjunction with the gear such that when the motor is operating the motor causes the gear box to operate thereby rotating the U-joint, rod, coupling, second rod, and worm gear to rotate and the worm gear and in turn causes the gear to operate and the gear engages the track teeth causing the shelf to move in relation to the track.

32. The protected display case as in Claim 2 wherein the movable panel assembly is comprised of a plurality of individually hinged panels with the hinged panels being stacked in an accordion like manner when the movable panel assembly is in a retracted position.

33. The protected display case as in Claim 5 further comprising a hat shaped rail and a carriage, the carriage having a movable shelf support and at least two wheels and the two wheels being adapted to engage the hat shaped rail such that the carriage is movable in a substantially vertical direction.

34. A carriage for use with a display unit having a top section, a bottom section, and a shelf movable between the top and bottom sections of the

display unit, and two hat shaped rails having sides,  
5 the carriage comprising;

a base secured to the shelf;

at least two wheels adapted to engage  
the sides of the hat shaped rails and the  
wheels being secured to the base, and the  
10 carriage and hat shaped rails operating in  
conjunction to keep the shelf in a  
substantially horizontal position while the  
shelf is moving or in a stationary position.

1 35. A carriage for use with a display unit  
having a top section, a bottom section, and a shelf  
movable between the top and bottom sections of the  
display unit, and the sides of two hat shaped rails,  
5 the carriage comprising;

a movable shelf support secured to the  
shelf;

at least two wheels adapted to engage  
the sides of each hat shaped rail and the  
10 wheels being secured to the movable shelf  
support and the carriage and the sides of  
each hat shaped rail operating in  
conjunction to keep the shelf in a

substantially horizontal position while the  
15 shelf is moving or in a stationary position.